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U.S. Cattle Supplies and Disposition

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General

For the past 100 years, a well defined cyclical rise and decline has emerged in U.S. cattle production. This cycle typically followed a 10 year course of 6 years of accumulation and 4 years of decrease. However the recent cattle cycle has not followed this trend but rather taken much longer to complete the cycle. This special report examines some of the issues that affected the current cattle cycle. In addition, the report also considers the role and production method of cattle being fed for the slaughter market; a brief description of survey procedures and sampling methods; and terminology and definitions used in NASS cattle publications.

Upturn in U.S. Cattle Cycle Indicated

Current and previous year increases in the U.S. cattle inventory support an upturn in the present cattle cycle. A review of the cattle cycle over the last two decades reveals downward trends of 8 years for 1982-1990 and 1996-2004 (Graph 1). However, the most recent downward turn in the cycle decreased at a much lower rate, dropping about 9 million head from the peak in 1996 compared to the previous downward cycle decrease of about 20 million head from the 1982 crest. The trough year of 2004 with an estimated 94.9 million head represents the lowest January 1 cattle and calves inventory since 1959 and is 928,200 less than the trough year of 1990.

The January 1, 2006 Cattle and Calves inventory at 97.1 million head is the largest inventory since the 2001 inventory number of 97.3 million, supporting the basis of an upturn in the cattle cycle (Table 1). This was an increase of 1.66 million head over last year and 2.21 million head above two years ago. The beef cow herd is the highest since 2001 and beef replacement heifers were the highest since 1997. The dairy herd buy-out program may have helped to slow the expansion of the milk cow herds to less than 1 percent annually. However milk replacement heifers are the highest since 1987 reflecting the growing tendency among dairy producers to replace their milk cows at a higher rate than in the past.

Cattle On Feed

Prior to the twentieth century, producers primarily used pasture or rangeland to feed their cattle. The proliferation of corn production, especially in the Midwest, provided a profitable alternative feed source for raising cattle. NASS defines cattle on feed as animals being fed a ration of grain, silage, hay and/or protein supplement that will be shipped directly from their current location to the slaughter market. These animals are expected to produce a carcass that will grade select or better.

A graphic representation of the factors relating to the NASS cattle on feed estimate is illustrated in Figure 1. As the flowchart indicates, cattle movement is a dynamic process and is affected by the availability of inexpensive corn as well as the suitability of pastureland. If grazing is plentiful and corn prices are high, lighter weight cattle may be shifted from the feedlot to pasture. However, typically cattle will return to the feedlot for finishing. If an area experiences drought conditions, cattle may be placed into feedlots at a lighter weight. The price of cattle may also influence retention as low prices may discourage the marketing (Graph 4) of cattle and may potentially result in heavier than normal cattle at slaughter. Exports and imports are subject to international factors such as disease and tariffs but have traditionally represented only a small portion of the live cattle market in the U.S (Graphs 5 and 6).

Information from the January 1, 2006 Cattle on Feed report indicates a heifer retention trend as heifers in feedlots with 1,000+ head of capacity dropped about 3 percent from two years earlier (Graph 7). Heifers as a percent of cattle on feed at 35 percent is comparable to the previous herd rebuilding years, and is lower than the 38 - 40 percent range experienced during the recent 8 year downturn in the cattle cycle. Both events support an expanding cow herd, fueled by solid market prices and low corn prices.

Heifer slaughter has shown declines for the last several years. Heifer slaughter as a percent of total slaughter is at the lowest level since 1996 (Graph 8). For 2005, heifer slaughter as a percent of total cattle slaughter was 30.7 percent and comparable to the heifer/cattle percent of the early nineties when the cow herd was in a building phase.

Cow slaughter represented 15 percent of the total slaughter suggesting that producers are retaining cows a little longer in the breeding herd. This, along with heifer retention, suggests that herds are rebuilding.

Survey Procedures and Methodology

Seventeen states are included in the monthly Cattle on Feed report. These states use a census approach and are responsible for identifying and surveying all known feedlots with 1,000 head or more one-time capacity for feeding cattle for slaughter market. Every year these lists are reviewed and updated to add new operations and to delete operations that are no longer in business.

The January and July Cattle reports are based on probability surveys. A probability survey assumes everyone in the target population has a positive probability of being selected. These probabilities don't have to be equal but they must be known and used in the sample selection and survey estimation process. Because a sample is used in the survey process, sampling errors are associated with the numbers. However, since the probabilities of selection are known, sampling errors can be calculated to determine levels of precision. In other words it allows an objective evaluation of the reliability of a statistic.

Ideally samples are taken from a complete cattle population. For completeness, the best way to do this would be to select areas of land over the entire United States. The land area of the United States then becomes a sampling frame. Because of the cost of surveying such a huge area, a list of cattle operations is used to supplement the area frame. Although the list is very efficient in targeting operations with cattle, it is never complete since people are constantly going in and out of the cattle business. For this reason both list and area frames are used: the list for efficiency and the area for completeness.

NASS increases the efficiency of the sample by grouping or stratifying operations with a similar number of cattle. This reduces the cost of the survey since stratified samples result in smaller samples with the same precision compared to non-stratified samples (Table 2).

In the above stratified sampling scheme, the population size refers to all cattle operators that have a similar number of cattle. For example, there are 20,200 cattle operators who have between 1 and 99 head of cattle. The sample size for that range is 161. This means that each operator in the selected sample for that particular stratum represents 125 other operators in the total population for that stratum. This representative number, or expansion factor, is simply determined by dividing the population size by the sample size.

Although NASS' list of cattle operators is an efficient sampling tool, it lacks the critical element of completeness. For this reason it is supplemented with a sampling frame based on area. Since this area sampling frame covers the complete U.S., and since each of the area units have known probabilities, it is an effective measure of the incompleteness of the list of cattle operations. This multiple frame approach combines both efficiency and completeness for estimating cattle statistics.

Cattle on Feed Terms and Definitions

Backgrounded cattle: Cattle that are fed a warm up or conditioning ration that are normally fed to approximately 700 pounds and then sold as feeders or shipped to another feedlot to be finished for the slaughter market.

Calf: Any animal less than 1 year old. Calves by NASS survey classification are animals that weigh less than 500 pounds.

Cattle cycle: A period of time in which the number of beef cattle in the Nation is alternately expanded and reduced for several consecutive years in response to perceived changes in the profitability of beef production.

Cattle on feed: Animals being fed a ration of grain, silage, hay and/or protein supplement. For survey purposes these cattle will be shipped from their current location directly to slaughter market. They are expected to produce a carcass that will grade select or better. Young calves fed a high energy ration which are sold and slaughtered as vealers are not considered cattle on feed for slaughter market.

Commercial feedlot: A feedlot whose primary enterprise is to feed cattle and market them for slaughter.

Custom feedlot: A firm engaged in fattening or finishing animals on a fee basis. The firm may or may not hold title to the animals.

Farmer/Feeder: An operator who typically farms and feeds cattle on the same operation. The cattle feeding part of his/her operation is usually worked around the farming, e.g., feeding cattle before or after crops are planted/harvested, grazing stalks, etc.

Fed marketings: Shipment of cattle out of feedlots to slaughter market for food.

Feedlot capacity: The maximum number of cattle that an operator can feed at any one time during the year. Feedlots vacant during the entire year are not counted, even if the facilities are still intact. Feedlot capacity is the common terminology used by commercial and custom feedlots.

Net placements: Placements minus other disappearance. This gives a true indication of actual placements into feedlots for the month.

Other disappearance: Movement of animals out of feedlots other than going to slaughter market. This includes death loss, cattle going back to grazing or pastures, and shipments to other feedlots.

Peak number: This is the largest number of cattle fed for slaughter during the past 12 months. This terminology is more meaningful for farmer/feeder operators that typically may not have an actual "feedlot."

Placements: Cattle put into feedlots with the intent to be shipped to slaughter, which are fed a ration that will produce a carcass grading select or better.

Stockers and feeders: Young steers or heifers, weighing approximately 400-700 pounds. These animals may be on pasture and/or a maintenance or warm-up ration until being put on full feed for slaughter market or being selected as herd replacement stock.

Warm-up ration: A cattle ration of grain and/or silage which prepares animals for placement in a feedlot on full feed. These cattle are being "backgrounded" in preparation for full feed.

Graph 1

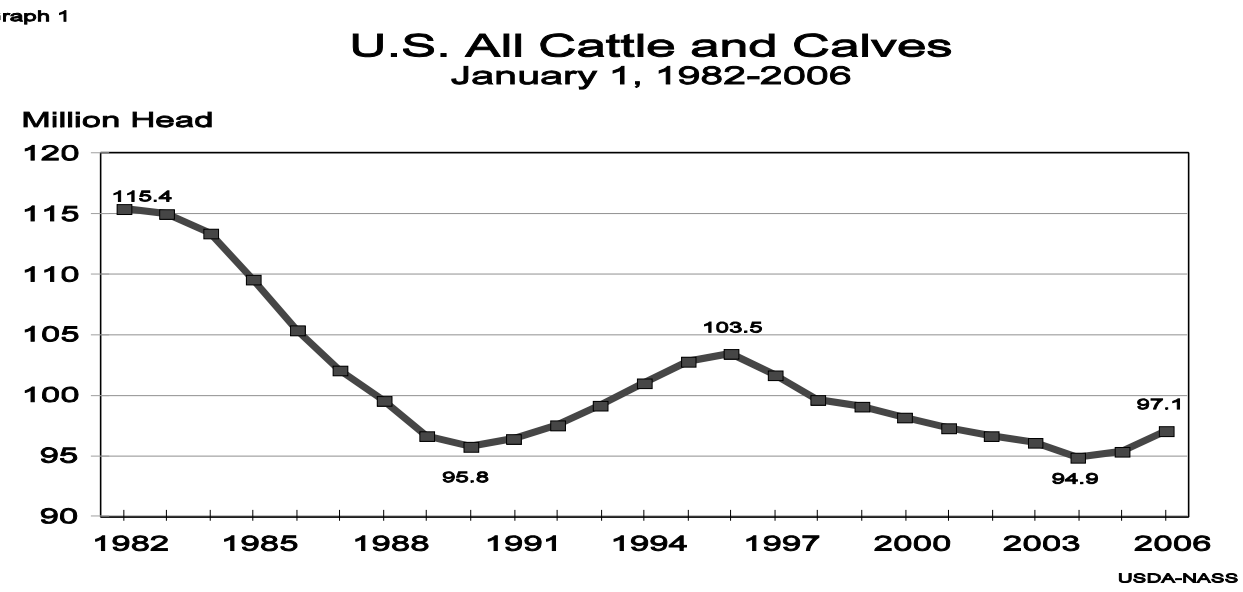


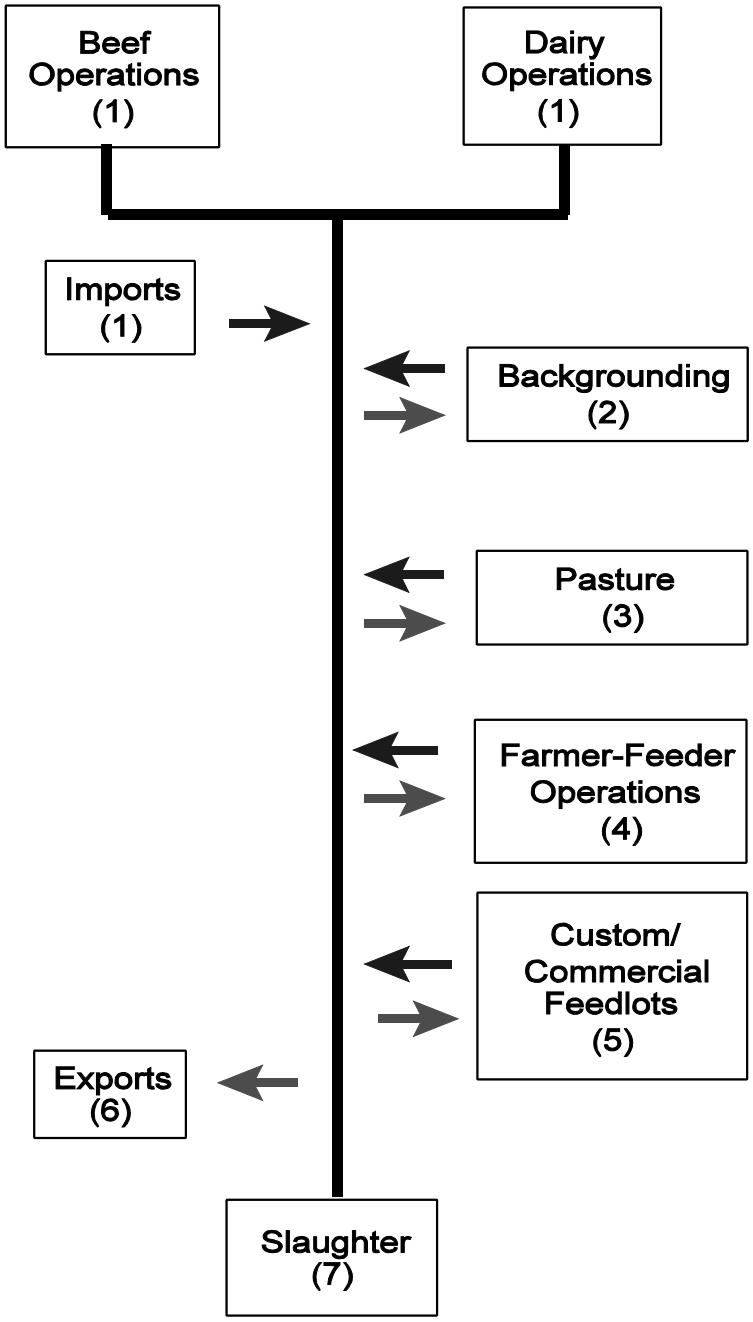
Table 1

Cattle and Calves: Number by Class and Calf Crop, United States, January 1, 2004-2006 [1]

Class	2004	2005	2006	2006 as % of 2005
	1,000 Head	*1,000 Head*	*1,000 Head*	*Percent*
Cattle and Calves	94,888	95,438	97,102	102
Cows and Heifers That Have Calved	41,851	41,920	42,311	101
Beef Cows	32,861	32,915	33,253	101
Milk Cows	8,990	9,005	9,058	101
Heifers 500 Pounds and Over	19,345	19,573	19,978	102
For Beef Cow Replacement	5,518	5,691	5,905	104
For Milk Cow Replacement	4,020	4,118	4,278	104
Other Heifers	9,806	9,763	9,795	100
Steers 500 Pounds and Over	16,277	16,476	16,923	103
Bulls 500 Pounds and Over	2,206	2,219	2,263	102
Calves Under 500 Pounds	15,210	15,250	15,626	102
Cattle on Feed	13,813	13,745	14,132	103
Calf Crop	37,505	37,780		

[1] Totals may not add due to rounding.

Figure 1 Cattle Movement Flowchart



1. Cattle Sources: Cattle come from 3 main sources: Beef Cow-Calf Operations, Dairy Operations, and Imports.

2. Backgrounding-Cattle fed a warm up ration up to approximately 700 pounds.

3. Pasture: Land allocated for grazing, typically grass but also includes wheat and other small grains during initial growth.

4. Farmer-Feeder: An operator who raises and feeds cattle on the same operation. Cattle must go directly to slaughter to be considered cattle on feed.

5. Custom: Feedlots based on finishing animals on a fee basis. Commercial: Feedlots where the main purpose is to feed and market cattle for slaughter.

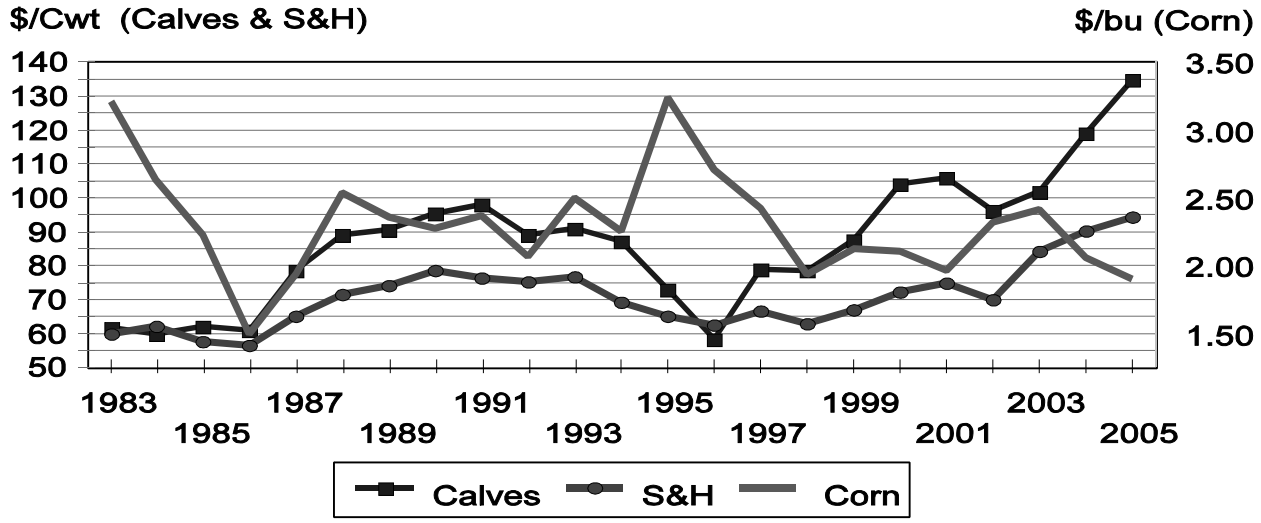
6. Exports: Cattle shipped out of the U.S.

7. Slaughter: Most cattle pass through federally inspected facilities with a small amount processed through non-federally inspected plants.

Note: Cattle movement freely passes back and forth from pasture to feedlots depending on such factors as pasture condition, price of corn, and price of cattle.

Graph 4

Prices Received by Farmers
Marketing Year Average, 1983-2005 1/ 2/



1/ Preliminary 2005 price.
2/ Calves are less than 500 pounds, steers and heifers are more than 500 pounds.

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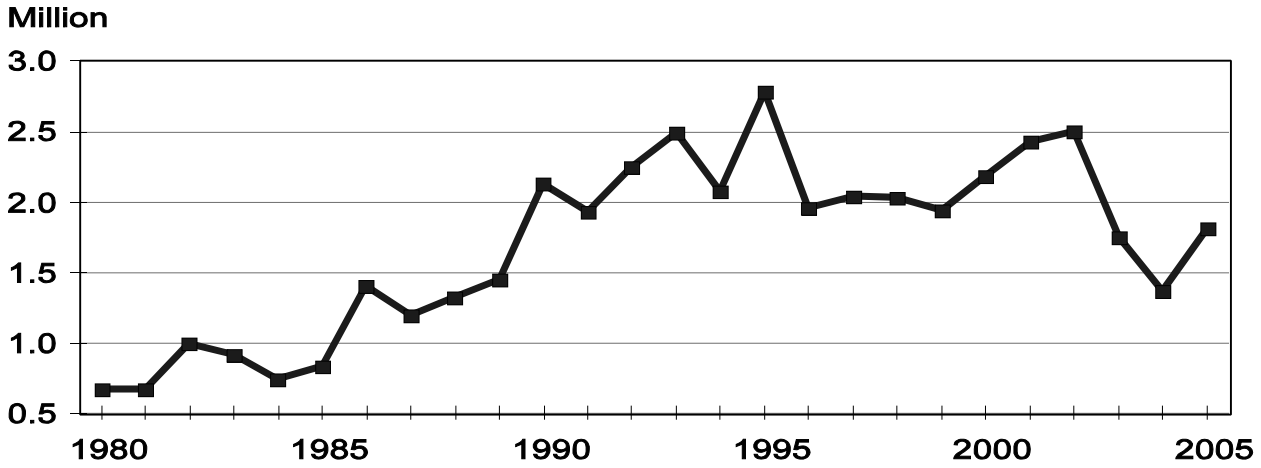
Graph 5

U.S. Cattle Imports



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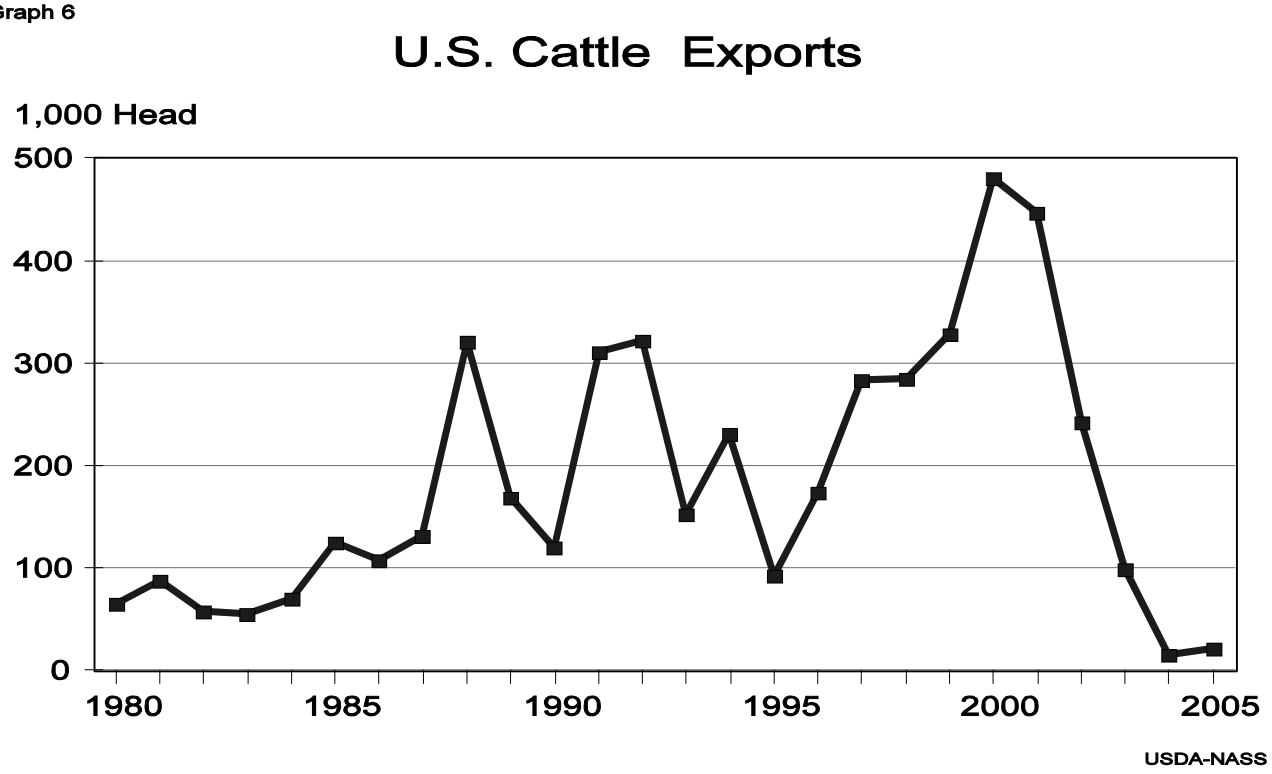
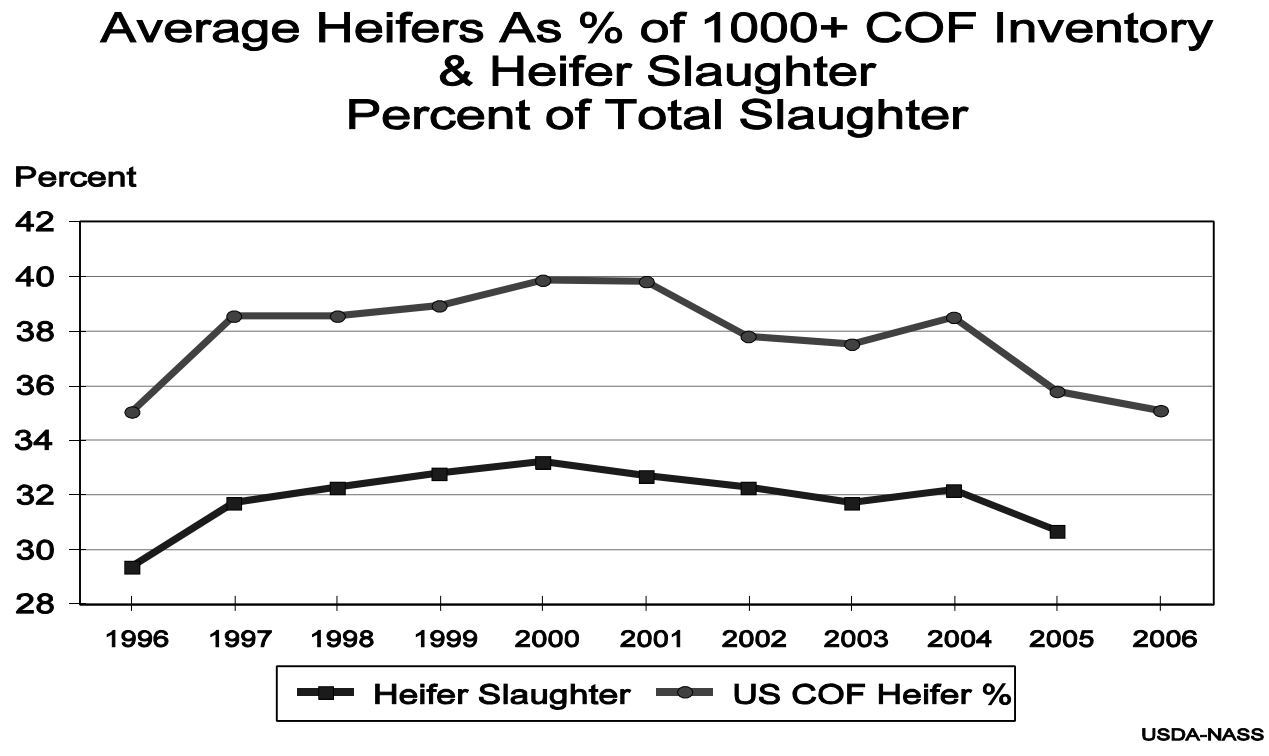
Graph 6



Graph 7



Graph 8

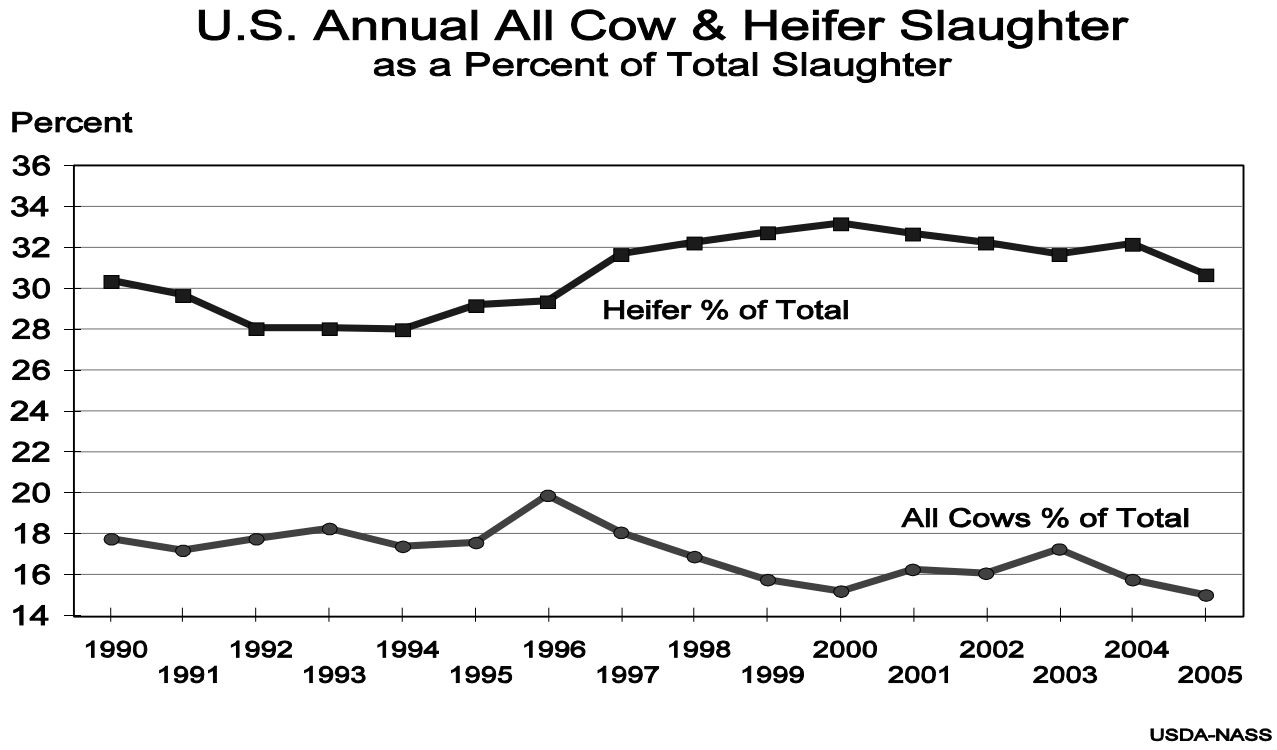


Table 1

Stratum		Population Size	Sample Size	Expansion Factor (Sampling Rate
1-99	Cattle	20,200	161	125
100-299	Cattle	15,100	138	109
300-499	Cattle	10,000	125	80
500-749	Cattle	5,000	125	40
750-999	Cattle	2,000	200	10
1000+	Cattle	300	300	1

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